

DEPARTMENT OF WATER AND POWER

FOR INTRA-DEPARTMENTAL USE ONLY

May 18, 1983

ADVANCED PROJECTS,
ENVIRONMENTAL AND
REGULATORY AFFAIRS GROUP

Mr. James H. Anthony
Project Director
Intermountain Power Project
931 General Office Building

MAY 19 1983

Meeting Between the Utah Department of Health (DOH)
and the Department Concerning Modification of the
Air Quality Permit for Intermountain Power Project (IPP)

On May 13, 1983, Mr. Ronald L. Nelson of the IPP Project Office and our Mr. Roger T. Pelote met with Mr. Brent C. Bradford, Director, Bureau of Air Quality, DOH, and members of his staff to discuss the technical review that DOH is conducting for modification of the air quality permit for IPP. A record of the meeting is attached for your information.

In accordance with a request made by Mr. Nelson after the meeting, Mr. Pelote will assist in the preparation of a response to DOH's request for additional technical information. He will also further investigate the possibility of eliminating the need for a Best Available Control Technology review through the use of a proposed new permit condition that would ensure that total emissions from each unit will not exceed those that were calculated for the existing permit.

If you have any questions or comments, please contact Mr. Roger T. Pelote on extension 3412.

A. F. Tessen

A. F. TESSEN
Acting Manager
Civil, Structural Engineering
and Services

RTP:ika

Attachment

cc: w/Attachment
Norman E. Nichols (2)
D. M. Pappe
V. L. Pruett
R. L. Nelson
B. Campbell
IPP File
Robert C. Burt
Patrick P. Wong
A. S. Buchanan
E. N. Friesen

J. J. Carnevale
N. F. Bassin
R. E. Gentner
D. W. Fowler
Manager, Civil, Struct.
Engrg. & Services
A. F. Tessen
M. J. Nosanov
L. A. Kerrigan
T. L. Conkin
✓ R. T. Pelote

IP11_001917

Meeting with Utah Department of Health
May 13, 1983

At the request of Mr. David Kopta of the Utah Department of Health (DOH) a meeting was held in Salt Lake City, Utah, on May 13, 1983 to discuss the technical aspects of the limited Best Available Control Technology (BACT) review being performed by DOH staff for modification of the air quality permit for Intermountain Power Project (IPP). Attendance was as follows:

Brent C. Bradford, Director, Bureau of Air Quality, DOH
David Kopta, Staff Engineer, DOH
John Walton, Staff Engineer, DOH
Ronald L. Nelson, IPP Project Office, DWP
Roger T. Pelote, DWP
James Holtkamp, IPA legal counsel

Mr. Nelson presented technical information that had been requested by Mr. Kopta in a telephone conversation with Mr. Pelote. Mr. Nelson provided handouts on boiler size relationships (Attachment 1), Babcock & Wilcox's dual register burner (Attachment 2) and furnace dimensions (Attachment 3). He also discussed the feasibility of the addition of overfire air ports, reduction of air preheat and flue gas recirculation for reducing NOx emissions. Mr. Kopta presented a letter addressed to Mr. Pelote requesting this information (Attachment 4); however, it was agreed that DOH would supersede that letter with a new one addressed to Mr. James H. Anthony requesting the following additional information:

1. Costs/benefits analysis for other methods of NOx reduction for installation both before and after commercial operation of IPP.
 - a. Thermal DeNox
 - b. Low excess air (5-6 percent)
 - c. Boiler plan heat release rate
2. Overall project costs for comparison to estimated modification costs.
3. Coal qualities and the impact of fuel-bound nitrogen on NOx emissions.
4. Explanation of economic assumptions and methods used by Black & Veatch in the memorandum concerning selective catalytic reduction and 95-percent SO₂ removal that was submitted to Mr. Bradford with our letter of April 14, 1983.

Mr. Kopta indicated that he has concluded that flue gas recirculation is not feasible for IPP and that reduction of air preheat is not applicable to coal-fired plants. Much of his information on NOx control appeared to be from an Environmental

Protection Agency (EPA) document titled "Technology Assessment Report for Industrial Boiler Applications - NOx", EPA-600/7-79-178f. He mentioned that Shell Oil Company is planning to use thermal DeNOx (Exxon process) for their proposed coal-fired Belridge cogeneration plant in Kern County, California.

Mr. Bradford indicated that he could be prepared to issue a Notice of Intent (NOI) on IPP as early as mid-June. He agreed to discuss his findings with IPP project personnel prior to public issuance of the NOI. Processing of the NOI will include a public hearing by DOH if requested by interested persons within 15 days of NOI issuance. Such a request appears likely. DOH will consider public comments and issue a modified permit to IPP. Appeal of the modified permit can be made by project proponents or opponents to the Utah Air Conservation Committee (UACC) within 20 days.

Mr. Bradford stated that IPP will probably not be discussed at the UACC meeting scheduled for May 23, 1983 and provided copies of the tentative agenda (Attachment 5), an agenda transmittal memorandum to the UACC (Attachment 6) and a memorandum to UACC summarizing the IPP submittal of April 14, 1983 (Attachment 7).

The possibility of eliminating BACT analysis from the permit modification process (through the use of new permit conditions that would ensure that total emissions from each unit would not exceed those calculated for the existing permit) was discussed. Mr. Bradford appeared to realize that this could be a viable alternative, and said he would consider this type of proposal from IPP.

Attachments

ENGINEERING DATA SHEET

Attachment 1

Sheet No. 1/1

Date

Prepared

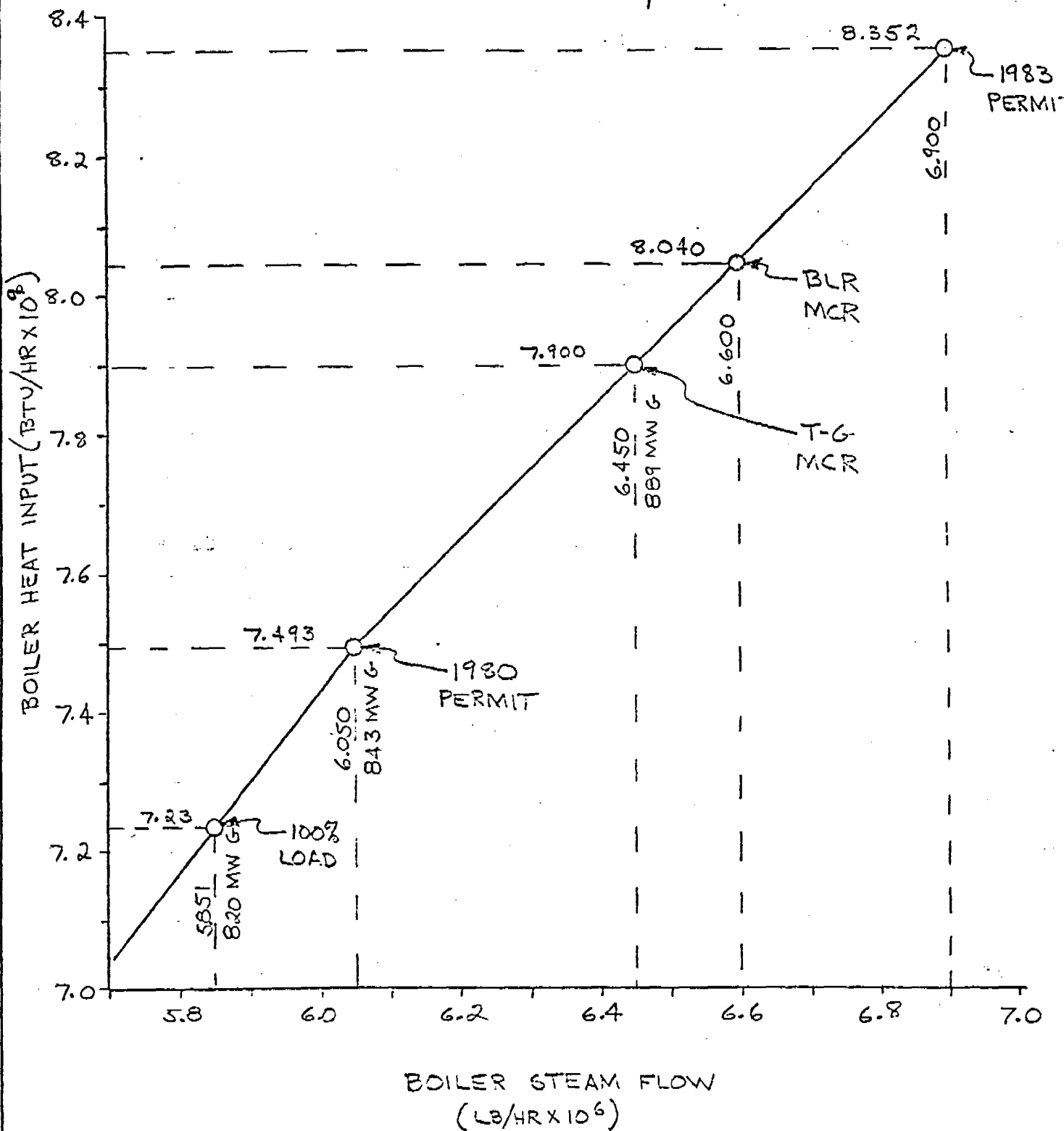
RLN

5-9-83

Checked

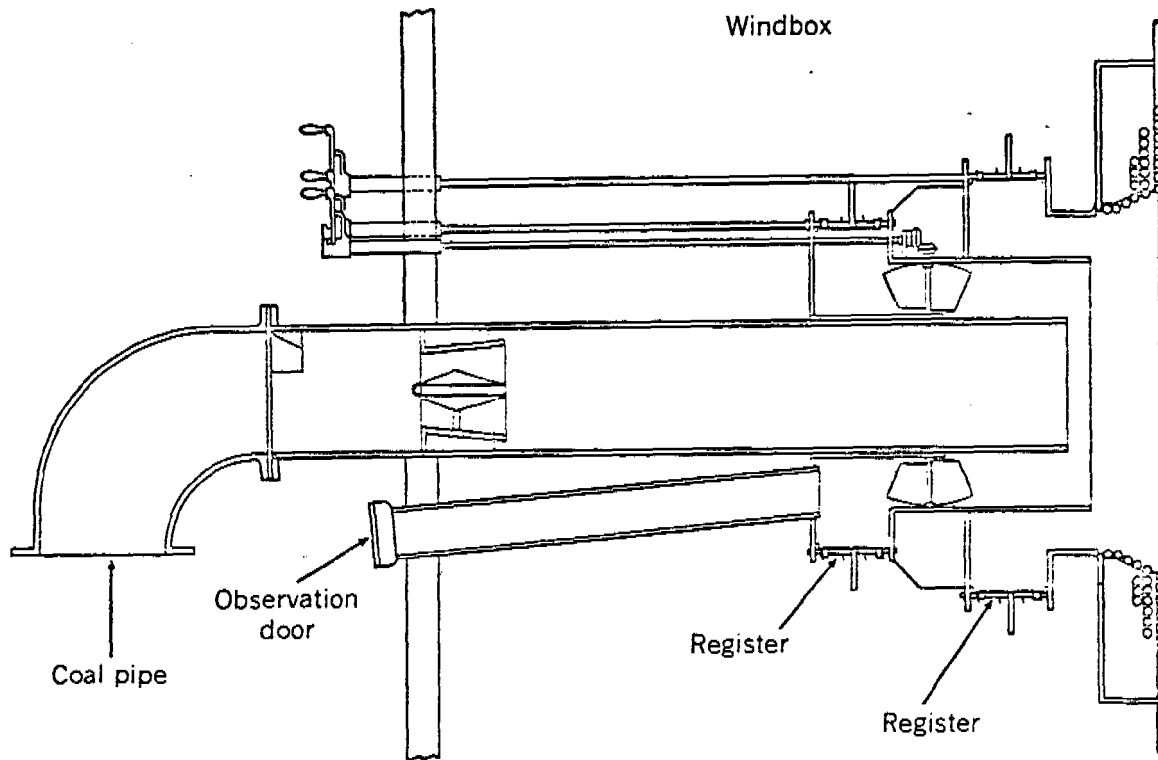
Approved

BOILER "SIZE" RELATIONSHIPS



IP11_001920

BDS
410
306Z-2
4-80

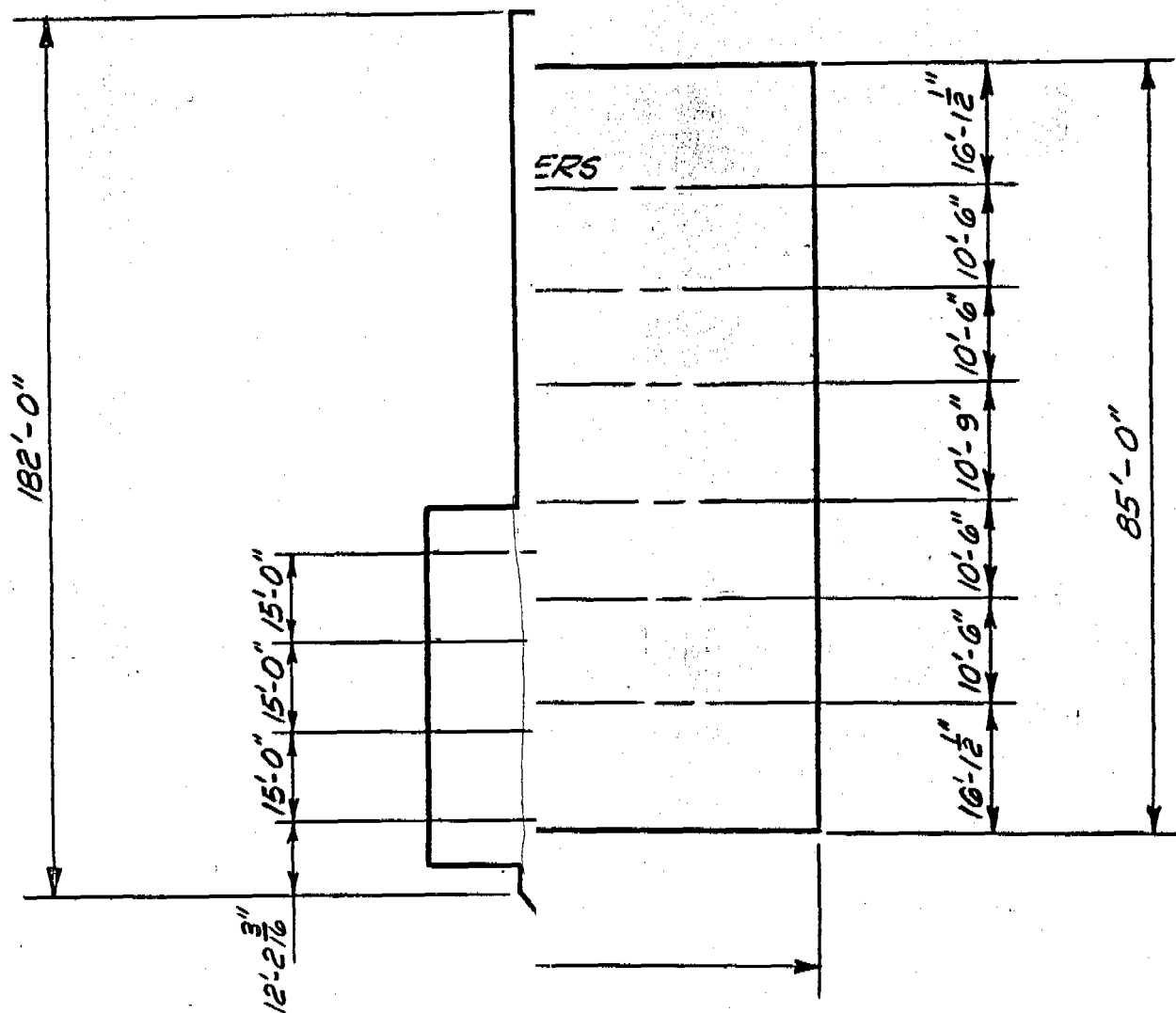


BURNERS

B&W circular throat dual register pulverized coal burners will be furnished. The dual register design reduces NOx emissions from coal fired boilers by minimizing the amount of secondary air introduced through the inner annulus register and mixed at the burner to that required to obtain ignition and sustain combustion. The remainder of the secondary air is introduced through the outer annulus register and mixed in the furnace to provide efficient combustion while maintaining the furnace pressure parts in an oxidizing atmosphere for slagging protection. The burners will be enclosed by a steel plate windbox, braced internally to withstand positive pressures.

Dual register burner

Babcock & Wilcox
a McDermott company



PLAN VIEW

FURNACE ITAIN POWER PROJECT
DIMENSIONS

MEB-58-037-82

IP11_001922



STATE OF UTAH
DEPARTMENT OF HEALTH
DIVISION OF ENVIRONMENTAL HEALTH

150 West North Temple, P.O. Box 2500, Salt Lake City, Utah 84110-2500

Marv H. Maxell, Ph.D., Acting Director
Room 474 801-533-6121

James O. Mason, M.D., Dr.P.H.
Executive Director
801-533-6111

May 6, 1983
533-6108

DIVISIONS

Community Health Services
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Health Care Financing

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Administrative Services
Community Health Nursing
Management Planning
Medical Examiner
State Health Laboratory

Roger T. Pelote
Department of Water and Power
City of Los Angeles
Room 632, 111 North Hope Street
Los Angeles, California 90051

RE: IPP (Additional Information
Request)

Dear Mr. Pelote:

In order to complete the air quality review of the Intermountain Power Project (IPP) changes, we request that the following information be submitted:

1. Design specifications and details of the planned combustion modification techniques to achieve an NO_x emission rate of 0.55 lb/10⁶BTU.
2. Analysis of costs/benefits of additional NO_x control through further flame control, the addition of overfire air ports, reduction of air preheat, and flue gas recirculation.
3. Information submitted to EPA in their review process concerning the implications of various coal sources/NO_x control levels on slagging in the boilers.

It is requested that this information be submitted by June 1, 1983.

Sincerely,

David Kopta
Public Health Engineer
Bureau of Air Quality

DK:wml
cc: Central Utah Health Department
James Holtkamp
Fred Nelson

2914



STATE OF UTAH
DEPARTMENT OF HEALTH
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UTAH STATE DEPARTMENT OF HEALTH
UTAH AIR CONSERVATION COMMITTEE MEETING
MAY 23, 1983 - 1:30 P.M.
AUDITORIUM, WILDLIFE RESOURCES BUILDING
1596 WEST NORTH TEMPLE, SALT LAKE CITY, UTAH

TENTATIVE AGENDA

- I. Call to Order
- II. Date of Next Meeting
- III. Minutes of Subcommittee Meeting, April 15, 1983
Minutes of Regular Committee Meeting, April 15, 1983
- IV. Variance Requests
Initial
 - Provo City Power
 - U. S. Steel
- V. Appointment of Hearing Officers
- VI. Update on Anti-Tampering Program
- VII. Update on EPA SIP Actions
- VIII. Other Business

Scott M. Matheson
Governor



STATE OF UTAH
DEPARTMENT OF HEALTH
DIVISION OF ENVIRONMENTAL HEALTH
150 West North Temple, P.O. Box 2500, Salt Lake City, Utah 84110-2500

Marv H. Maxell, Ph.D., Acting Director
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May 11, 1983

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MEMORANDUM TO: Utah Air Conservation Committee

FROM: Brent C. Bradford, Executive Secretary *BCB*

SUBJECT: Air Conservation Committee Meeting,
May 23, 1983

A regular meeting of the Air Conservation Committee has been scheduled for May 23, 1983, at 1:30 P.M. in the Wildlife Resources Auditorium, 1596 West North Temple, Salt Lake City.

Attached is a tentative agenda for the meeting.

The hearings for the SIP and regulation changes adopted by the Committee at the April 15, 1983 meeting have been scheduled for June 2, 1983. Seven hearings will be held simultaneously that day in each Association of Government area in the state.

You will find included in the mailing this month a good deal of material related to acid rain impacts, NOx emissions, etc. This information has been provided by Sherman Young. Mr. Young is interested in providing the Committee information related to acid rain as input to any decision that may be made relative to IPP.

The staff has reviewed the information submitted by IPP at the last meeting and a summary memo of that information is included as required by the Committee.

You will note that the IPP issue is not on the agenda for the May meeting. The staff is currently gathering additional information necessary to make a BACT determination on the IPP application for a modified source. When the preliminary BACT determination has been made, we will then have something concrete to discuss.

If you have any questions, please contact me.

BCB/ads
2957

IP11_001925

Scott M. Matheson
Governor



STATE OF UTAH
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May 13, 1983
533-6108

DIVISIONS

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MEMORANDUM TO: Utah Air Conservation Committee Members

FROM: Brent C. Bradford, Executive Secretary, Utah Air Conservation Committee

SUBJECT: Summary of the of IPP Document Dated April 14, 1983,
Submitted to the Committee on April 15, 1983

IPP's submittal contains two enclosures put together by consulting firms. The first comments on problems with the California Air Resources Board (CARB) guidelines for control of emissions from coal fired power plants. The second report deals with the feasibility and cost of placing selective catalytic reduction (SCR) and 95% SO₂ removal equipment on the IPP plant.

IPP states that by submitting this data, they do not concede the CARB guidelines in any way apply to IPP. IPP also states their opinion that under the Utah Air Conservation Regulations (UACR), the plant is not subject to either major modification review nor any further control technology review. IPP goes on to point out that the CARB guidelines are not law in California. IPP concluded by stating the CARB guidelines have not been demonstrated to be attainable, and the cost to implement the CARB proposed control technology would seriously threaten the economic feasibility of the project.

Summary of Enclosure 1

"Review of the California Air Resource Board Report Titled Proposed Guidelines for the Control of Emissions from Coal Fired Power Plants" by Stearns-Roger Engineering

Most of the Stearns-Roger comments deal with the technical problems of the CARB guidelines and are only indirectly linked to the feasibility of the pollution control equipment. Those comments are as follows:

A. Continuous emissions monitors (CEM's) currently available will not reliably measure the low pollutant concentrations required by CARB. The CARB guideline requirement that particulate emissions and opacity be correlated, and that this correlation be used to determine continuous compliance with the particulate standard cannot be done at such low concentrations.

B. The limitation for particulate matter is stated in grains/ACF rather than lb/10⁶BTU, and the locations in the gas train where particulate matter and SO₂ are to be measured are not adequately specified. It is also not clear whether condensibles are to be counted as particulate matter.

C. CARB requires that the NO_x and SO₂ limitation be met on a three hour running average basis verses the 30 day average required by NSPS. The extra stringency required by the three hour averaging time and its associated costs were not considered by CARB.

D. No provisions were made for upset and malfunction.

The major points in the report which address the feasibility of the control technology are:

A. Particulate. Only about 50% of existing fabric filter installations meet the .005 grain/ACF emission limitation, and the performance of fabric filters in terms of collection efficiency has yet to be characterized by any relationship involving fabric filter size or other parameters. Therefore, designing a baghouse to meet the lower limitation "requires the application of a science which does not currently exist."

After stating that the limitation could not be met, Stearns-Roger estimated the additional cost to go from NSPS limit to the CARB guidelines limit as the addition of extra filter compartments for increased maintenance and installation of opacity meters for detection of leaking bags.

B. Sulfur Dioxide. CARB should have calculated the costs of going from 70% (NSPS) to 95% removal rather than 90% to 95%. Combined with the three hour averaging period, 95% is pushing SO₂ scrubbers beyond their capability.

C. Oxides of Nitrogen. Information and data upon which to design a SCR system is limited to a Japanese demonstration plant (Takahara) and two U.S. pilot plants. These data are not adequate to design for the specifics of the CARB guidelines. Many problems were encountered in scaling up from pilot plants to the 100 KW_x Takahara demonstration. Specific problems were a required increase in catalyst to reduce ammonia slip and blockage of the catalyst with dust.

CARB misinterpreted some cost reports and ignored the fact the spent catalyst may have to be disposed of as a hazardous waste. This resulted in an under estimate of costs.

Summary of Enclosure 2

"Intermountain Generating Station 95% SO₂ Removal and Selective Catalytic Reduction of NO_x" To R. L. Nelson from R.W. Dutton

This memo gives a brief review of how SCR works and what would be required to install the equipment at IPP. If a decision to put SCR on IPP was made on June 1, 1983, an 18 month delay to the project would result. The memo then reviews the SO₂ scrubber stating the present design is for 90% removal on a 30 day average, and that this level is the upper limit which scrubbers are able to achieve on a continuous basis. Removal efficiency above 90% on a continuous basis has not been demonstrated. The major obstacle to higher efficiency on a continuous basis is the inability to overscrub to make up for periods of reduced efficiency due to component failure, etc. In order to estimate the cost for 95% removal, the memo uses a SO₂ scrubber designed with nine modules; five on line necessary to meet 95% removal, two on standby, and two under maintenance. (The present design has six modules; four on line to meet 90%, one on standby, and one under maintenance.) An 18 month delay to the project would result from a change in the SO₂ scrubber design at this time.

The memo then calculated how a 18 month delay would cost approximately 1 billion dollars, due to additional interest and replacement power costs. The capital cost of the equipment is cited as 236 million for SCR and 108 million for a 95% SO₂ scrubber. Operating costs listed as "Capitalized Operating Cost" are given as 784 million for SCR and 165 million for a 95% SO₂ scrubber.

NOTE: The above are only brief summaries of the information IPP submitted. The staff has not reviewed this information for its accuracy, and at this time, neither agrees or disagrees with the content of the submittal.

DK/JW:wml
2956